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REMARKS

Appreciation is hereby expressed to Examiner Reese for the very thorough and professional office action detailing the Examiner's reasons for the rejection. Also, the Examiner is thanked for withdrawing the previous rejection based on Shirai, U.S. Patent 5,377,369. Pursuant to that office action, Claims 1-3 and 5-8 have been amended to more definitely set forth the invention and obviate the rejections. Support for the amendment of claim 1 can be found in the Specification on page 8, last paragraph, through page 11, third paragraph, and in the drawings, Figs. 7-12. The present amendment is deemed not to introduce new matter. Claims 1-3 and 5-8 remain in the application.

Reconsideration is respectfully requested of the rejection of claims 1-3 and 5-8 under 35 U.S.C. 102(b) as anticipated by Shirai U.S. Patent 5,388,290.

**The Present Invention**

The present invention relates to a bed having a bendable bottom member comprising a plurality of side-by-side bars bendably connected to each other allowing the whole extent of the connected bars to be shortened, extended and/or curved. These bars are disposed generally perpendicular to the longitudinal axis of the bed. One of every two adjacent bars is provided on one edge or face with a plurality of longitudinal connecting protrusions which extend generally parallel to the longitudinal axis of the bed.

These protrusions have an approximate rectangular cross-section when taken perpendicular to the longitudinal axis of the bed, and an elongated generally rectangular cross-section tapered at its tip on a bottom face when taken in a direction parallel to the longitudinal axis of the bed.

These bars are also provided with a plurality of recesses for accepting the respective connective protrusions formed and projecting from a corresponding opposite face of an adjacent bar.

These recesses have an approximate rectangular cross-section when taken in a direction

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perpendicular to the longitudinal axis of the bed. Also, the recesses have right and left lateral walls and top and bottom walls for accepting protrusions extending from an adjacent bar.

The recesses accommodate the insertion in the direction of the longitudinal axis of the bed of the protrusions therein in sliding engagement therewith in a direction parallel to the longitudinal axis of the bed. In this construction, the top and bottom walls of each of the recesses contact top and bottom faces of corresponding protrusions inserted therein.

The protrusions have at tips and bases thereof first and second beveled portions. The first beveled portion is formed on a bottom face of each protrusion at its tip. The second beveled portion is formed at a top face of each protrusion at its base. The first and second beveled portions form clearances between the protrusions and corresponding faces of the recesses to facilitate bending of connecting bars a preset distance in one direction only. In this way, adjacent bars can be adjusted in their intervals and can be rotated in one direction up to a predetermined angle.

The bars are also provided with disengagement preventing means in the form of hooks formed at a tip of some of the connecting protrusions. Corresponding accepting recesses having steps therein adapted to engage the hooks are also provided in adjacent bars. In this manner, hooks and steps are engaged with each other when the relative adjacent bars are kept furthest away from each other. The adjacent bars are adjustable in gaps between adjacent bars. Also, the bars are connected with each other in such a manner that they can be curved as a whole up to a predetermined angle in one direction only.

**The Shirai U.S. Patent 5,388,290**

The Shirai patent is concerned with a bottom structure of a bed which has a lifting mechanism. The bottom of the bed comprises a plurality of parallel bottom strips. Each of the bottom strips is sequentially connected to allow bottom bending. Each of the bottom strips have a

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tenon formed in the longitudinal axis direction of the bed on one of the faces to be face-to-face with an adjacent bottom strip. The adjacent bottom strip is provided with a mortise formed in an opposite face so as to be loosely engaged with the tenon of the adjacent bottom strip.

The tenon disclosed by the Shirai reference is in fact a T-shaped projection extending from one face of the bar. This T-shaped projection has its stem portion extending parallel to the longitudinal axis of the bed. The top of the T is positioned so as to be vertical and perpendicular to the longitudinal axis of the bed.

The bars disclosed by the Shirai reference also contain a T-shaped recess to accommodate insertion of the T-shaped protrusion from an adjacent bar. However, in the construction of Shirai, the T-shaped projection extending from one face of the bar cannot be inserted into the accommodating recess of an adjacent bar in the direction of the longitudinal axis of the bed. This is because the top portion of the T-shaped projection is larger than the entry access to the T-shaped recess on an adjacent bar.

This construction can be easily seen in the Shirai patent in Figs. 2-5, 6A and 7A. Therefore, it is apparent from the drawings in the Shirai patent that it would be necessary in assembling the bottom of the bed to place adjacent bars approximately end-to-end so that the end of a T-shaped protrusion on one bar can be inserted into the end of a T-shaped recess of an adjacent bar. As a consequence of this construction, the T-shaped projection of Shirai cannot be inserted into sliding engagement with the recess in an adjacent bar in a direction parallel to the longitudinal axis of the bed.

#### **The Rejection**

Applicant respectfully traverses the Examiner's conclusions at the outset of the rejection that "The shape and appearance of Shirai is identical in all material respects to that of the claimed

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design." On the contrary, applicant respectfully submits that the bed now called for in the claims herein in no way resembles the shape and appearance of the bed of Shirai for a number of reasons which will be discussed herein.

In the Office Action (pages 3 and 4), the Examiner states that Shirai teaches "... one of every adjacent two of the bars (1) is provided with a plurality of longitudinal connecting protrusions (9) being generally parallel to the longitudinal axis of the bed while a plurality of recesses (3) having a ..." using the wording in Claim 1 of the present application. It is strongly urged that this analysis is flawed as discussed hereinafter.

In particular, bar (1) of Shirai has a connecting protrusion formed at the leading edge of the bar and being in the shape of a T. This T-shaped protrusion referred to by Shirai as a tenon (9) (Fig. 3 of Shirai) is an integral structure continuous in the direction perpendicular to the longitudinal direction of the bed and is not "a plurality of longitudinal connecting protrusions (9)". Similarly, a recess (3) of Shirai is an integral structure continuous in the direction perpendicular to the longitudinal direction of the bed, and is not a plurality of recesses (3).

Claim 1 of the present application calls for each bar to have a plurality of longitudinal connecting protrusions (21) and a plurality of recesses (22) (see Figs. 7 and 8 of the present application). Since a sufficient gap is formed between every two adjacent connecting protrusions (21), adjacent bars (20) are connected to each other by the connecting protrusions (21) and the plurality of recesses (22), to form a bendable bottom member. When this bottom member is used, as shown in Fig. 9, etc. of the present application, plural spaces are formed between the respectively adjacent bars (20) in correspondence to the gaps between the connecting protrusions (21).

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In contrast, the T-shaped connecting protrusion and the T-shaped recess of Shirai, respectively, have an integral structure continuous in the direction perpendicular to the longitudinal direction of the bed. Therefore, when the connecting protrusion and the recess are used to form a bendable bottom member, no space can be formed at all between the respectively adjacent bars. The structure and function of the bed of the present invention is quite different from the bed of Shirai in this regard.

It is respectfully urged that persons skilled in the art of bed construction understand that one of the conditions in manufacturing a bed is to have the bottom of the bed with air permeability. This can be illustrated, for example, when the bottom of the bed is formed from a flat plate which is usually provided with many holes for ventilation.

In the bendable bottom member of the present application, plural spaces are formed between said respectively adjacent bars (1), so that air can flow between, above and below the bottom. However, the bed disclosed by Shirai does not allow air to flow either between, above or below the bottom.

Although the air permeability of the bed of the present invention is not discussed in the present application, it is respectfully urged that the drawings herein disclose the air permeability of the bed of the present invention, which feature would be appreciated by those skilled in the art. Since air permeability is important in bed design, it is respectfully requested that the Examiner consider this feature as a material aspect of the present invention.

The Office Action (page 3, line 17 to page 4, line 3) describes "... motion of adjacent bars (1) in a vertical direction are blocked since top (6) and bottom (7) walls ... to allow the connecting bars (1) to be bent a preset distance in one direction only (Fig. 7A). ...." This

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analysis is believed to be erroneous in a number of respects.

In the present application, "to allow the connecting bars (1) to be bent a preset distance in one direction only," there is provided "said first beveled portion being formed on a bottom face of each protrusion at its tip and said second beveled portion being formed on a top face of each protrusion at its back." This construction allows bending in one direction, but does not allow bending in the other direction. The bed design of the present invention is characterized by being asymmetrical in terms of bending.

In contrast, the protrusion 9 of Shirai has a T form projecting upward and downward at its tip. Consequently, the protrusion of Shirai does not have either said first beveled portion or said second beveled portion, and the bed design of Shirai therefore is symmetrical in terms of bending. Therefore, the T-shaped projection of Shirai allows bending not only in one direction but also in the other direction.

#### **The Amendments To The Claims**

Claim 1 has been extensively amended to obviate the rejection and more clearly patentably distinguish from the Shirai reference. In particular, applicant has attempted to define the construction of the protrusion and recesses employed in the present invention, and patentably distinguish these features from the construction disclosed by Shirai.

In particular, Claim 1 has been amended to make it clear that both the protrusions and accommodating recesses are both approximately rectangular in cross-section when taken in a direction perpendicular to the longitudinal axis of the bed. In contrast, in the Shirai reference, both the T-shaped protrusion and T-shaped recess disclosed therein extend entirely across the length of the bar and would appear to have a T-shaped cross-section when taken parallel to the longitudinal axis of the bed. In this same connection, it is emphasized that Claim 1 herein calls

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for a plurality of protrusions and a plurality of accommodating recesses, which feature is nowhere found in the Shirai reference.

Moreover, Claim 1 has been amended to require that the recesses accommodate the insertion in a direction parallel to the longitudinal axis of the bed of protrusions therein in sliding engagement therewith in a direction parallel to the longitudinal axis of the bed. This feature is, of course, nowhere found in the Shirai reference since the T-shaped protrusion cannot be inserted into the entrance of the T-shaped recess in a direction parallel to the longitudinal axis of the bed.

It is respectfully urged that these and the many other features required by the claims herein are simply nowhere found in the Shirai reference. Therefore, applicant urges very respectfully that the shape, appearance, and function of the bed bottom called for in the claims herein clearly and unquestionably patentably distinguishes from the bed bottom disclosed by Shirai. Consequently, the Examiner would be justified in no longer maintaining the rejection. Withdrawal of the rejection is accordingly respectfully requested.

In view of the foregoing, it is respectfully submitted that the application is now in condition for allowance and early action and allowance thereof is accordingly respectfully requested. In the event that there is any reason why the application cannot be allowed at the present time, it is respectfully requested that the Examiner contact the undersigned at the number listed below to resolve any problems.

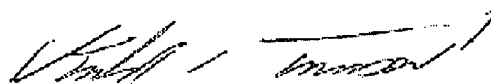
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Respectfully submitted,

TOWNSEND & BANTA



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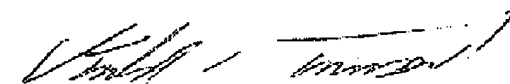
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CERTIFICATE OF TRANSMISSION

I hereby certify that this facsimile transmission, consisting of an Amendment and Transmittal, in U.S. patent application Serial No. 10/765,958, filed on January 29, 2004, is being facsimile transmitted to the U.S. Patent and Trademark Office (Fax no. 571-273-8300) on April 2, 2007.



Donald E. Townsend